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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/605,988	11/12/2003	Daniel J. Wilkinson	60680-1765	2987

10291 7590 11/09/2005

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EXAMINER	
PATEL, VISHAL A	
ART UNIT	PAPER NUMBER
3673	

DATE MAILED: 11/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/605,988	WILKINSON, DANIEL J.	
	Examiner	Art Unit	
	Vishal Patel	3673	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 August 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *8/4/05* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

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DETAILED ACTION

Applicant should use proper claim status identifier.

Claim Objections

1. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 6-10 have been renumbered as 5-9 and misnumbered claims 11-15 are renumbered as 10-14 and dependent from the renumbered claim 9.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3, 6-7, 9 and 12-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Fall (US. 2,349,903).

Fall discloses a piston ring assembly (figure 4) for retention in a ring groove of a piston of an internal combustion engine. The piston ring assembly comprising an upper ring (10) for bearing against an upper surface of the piston ring groove, a lower ring (11) for bearing against a lower surface of the piston ring groove, a first shoulder recess (recess that retains the expander 18) about an inner periphery of the upper ring, a second shoulder recess (recess that retains the

expander 18) about an inner periphery of the lower ring, a first portion of the upper ring is in contact with a corresponding first portion of the lower ring (where upper ring and lower ring 10 and 11 contact each other, see figure 4), a generally sinusoidal expander (18) having alternating apexes (apexes 15b of the expander 18 not showed in figure 4 but showed as example in figure 1), the generally sinusoidal expander received in a cavity formed by the first shoulder recess and the second shoulder recess and radial compression of the upper and lower rings induces axial expansion of the generally sinusoidal expander (this is the case since the upper ring, the lower ring and the expander have the same structure as claimed by applicants, further more upper and lower rings and the expander are split rings) for urging the upper and lower rings against the upper and lower surface of the piston groove. The piston ring assembly is capable of being positioned within a ring groove (groove as seen in figure 4 that retains the piston ring assembly) of a piston such that the axial expansion of the expander urges the upper ring against the upper surface of the ring groove and the lower ring against a lower surface of the ring groove (this is the case since the expander, the rings have the same structure as claimed by the applicant, intended use). The upper and lower rings have a lip (lip on outer surface of the upper and lower rings). The apexes are generally flat and are supported by two adjacent leg members. The upper ring includes a first gap and the lower ring includes a second ring gap (the upper and lower rings are split rings).

4. Claims 1-2, 4, 6-10 and 12-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Wuerfel (RE. 20,256).

Wuerfel discloses a piston ring assembly comprising an upper ring (12), a lower ring (13), an expander (28) positioned between the upper ring and the lower ring, the expander

including apexes that contact the upper and lower rings, radial compression of the upper and lower rings induces axial expansion of the expander (this is the case since all structural limitation are disclosed by Wuerfel). The piston ring assembly capable of being positioned within a ring groove (ring groove where the rings and expander lie in) of a piston such that the axial expansion of the expander urges the upper ring against an upper surface of the ring groove and the lower ring against a lower surface of the ring groove (this is the case since all structural limitation are disclosed by Wuerfel). The expander is generally sinusoidal in shape and includes two ends defining an expander gap (figure 2 shows a gap) such that radial compression of the upper and lower rings maters the two ends thereby closing the expander gap and the mated two ends form a generally W-shaped configuration (this is the case since the gap is formed by a slit in one of the apexes, figure 1). The apexes of the expander are generally flat and are supported by two adjacent leg members such that an angle defined by the adjacent leg members have a value. The upper ring includes a first ring gap and the lower ring includes a second ring gap (figure 1). The apexes of the expander are **generally** flat. The upper ring includes a first gap and the lower ring includes a second ring gap (the upper and lower rings are split rings). The upper and lower rings have lips on an outer peripheral surface (figure 7). One of the upper ring and lower ring include a plurality of projections on a mating inner surface to define a plurality of vents (vents 25). The upper and lower rings contact each other at portions where no vents exist (figure 1-2).

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fall.

Fall discloses the claimed invention except that the angle is 16 degrees. Discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Without the showing of some unexpected result.

Since applicant has not shown some unexpected result the inclusion of this limitation is considered to be a matter of choice in design. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the angle to be about 16 degrees as a matter of design choice.

6. Claims 5 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wuerfel.

Wuerfel disclose the claimed invention except that the angle is 16 degrees. Discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Without the showing of some unexpected result. Since applicant has not shown some unexpected result the inclusion of this limitation is considered to be a matter of choice in design. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the angle to be about 16 degrees as a matter of design choice.

Response to Arguments

7. Applicant's arguments with respect to claims 1-14 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

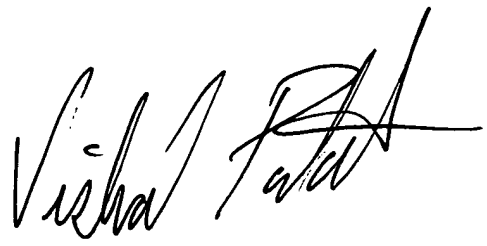
the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vishal Patel whose telephone number is 571-272-7060. The examiner can normally be reached on 6:30am to 8:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Heather C. Shackelford can be reached on 571-272-7049. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

VP
November 7, 2005



Vishal Patel
Patent Examiner
Tech. Center 3600

FIRST NAMED INVENTOR: *Daniel J. Wilkinson* ATTY. DOCKET NO.: *60680-1765*
TITLE: *Piston Ring Assembly*

APPROVED, VP 11/7/05

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Replacement Sheet